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EXAMINER	
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ART UNIT	PAPER NUMBER
2654	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

K.S

Office Action Summary	Application No.	Applicant(s)	
	09/813,965	ROREX, PHILLIP G.	
	Examiner	Art Unit	
	Daniel A. Nolan	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification, such as:

- The space is missing from "*a priori*" (3rd line from end page 7).

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- Definition for the term "transneme" (claims 1, 19, 28 and 46) has not been found in diligent search of non-patent and prior art. The Examine is proceeding with the understanding that the term is equivalent to *any speech signal feature.*
- Specification for carrying out the feature "*wherein said one or more speech units are combined"* (claims 20-22) is not found in the specification. The Examiner is proceeding with the understanding that any process involving multiple speech portions satisfies the condition.

Claim Objections

3. Claim 1 is subject to interpretation. The Examiner is proceeding with the understanding that there is one single condition to the feature and that the claim should be read as follows:

> " *wherein if* that *frequency spectrum difference is greater than a predetermined difference threshold,*
> (the device then) *converts* that *frequency spectrum difference to a transneme;*
> *"and* (the device) *creates a digital voice stream representation of* that *voice stream from one or more transnemes thus produced"*

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-72 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- The elements critical to the invention, being central to all independent claims 1, 19, 28 and 46 which limits are set forth to all dependent claims. Definition of the term was sought by the Examiner in all sources of prior art, educators and the Internet, to no avail.
- The Examiner is proceeding with the understanding that the term is intended to indicate *any speech signal feature.*

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- The omitted elements are: "Transnemes" and all combinations, including in part: *transneme tables, method of finding or detecting transnemes, transneme-to-vocabulary database, determining candidate transnemes.*
- The Examiner is proceeding with the understanding that the term indicates *any speech signal feature.*

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which that subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr.

8. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* (U.S. Patent 5839099 A) in view of Ozawa *et al* (U.S. Patent 4,716,592) and further in view of Braida *et al* (U.S. Patent 5,745,873 A) and further in view of Sharman (U.S. Patent 5,970,453 A) and further in view of Goodridge, Jr. (U.S. Patent 6,073,100 A).

9. Regarding claim 1 as understood by the Examiner, the preparatory *signal conditioning apparatus* of Munsell *et al* reads on the feature of the claim for *speech recognition* as follows:

- Munsell *et al* (20→12 in figure 2) reads on the feature of *an I/O device for accepting a voice stream* (column 1 lines 34-35)
- Munsell *et al* (column 1 lines 37-40) reads on the feature of *a frequency domain converter communicating with* that *I/O device,* that *frequency domain converter converting* that *voice stream from a time domain to a frequency domain and generating a plurality of frequency domain outputs;*
- Munsell *et al* is silent as to *storage.* Ozawa *et al* (column 15 lines 48-50) reads on the features of *a frequency domain output storage communicating with* that *frequency domain converter,* that *frequency domain output storage comprising at least two frequency spectrum frame storages for storing at least a current frequency spectrum frame and a previous frequency spectrum frame, with a frequency spectrum frame storage of* that *at least two frequency spectrum frame storages comprising a plurality of*

frequency bins (as the *subframes* in column 12 lines 61-68) *storing* that *plurality of frequency domain outputs;*

- Ozawa *et al* (column 11 line 53) further reads on the feature of *a processor communicating with* that *plurality of frequency bins* and (350 figure 13) *a memory communicating with* that *processor;* and (column 6 lines 35-38) reads on the feature of *a frequency spectrum difference storage in* that *memory, with* that *frequency spectrum difference storage storing one or more frequency spectrum differences calculated as a difference between* that *current frequency spectrum frame and* that *previous frequency spectrum frame;* and (column 9 line 8) reads on the feature of *at least one feature storage in* that *memory for storing at least one feature extracted from* that *voice stream;*
- Ozawa *et al* (column 6 lines 35-38) further reads on the feature that *calculates a frequency spectrum difference between a current frequency spectrum frame and a previous frequency spectrum frame* but neither he nor Munsell *et al* read on mapping *frequency spectrum difference to a transneme table.*
- The *speech recognition system* of Braida *et al* (with the *codebooks* in column 5 lines 17-25) reads on the feature of *at least one transneme table in* that *memory, with* that *at least one transneme table including a plurality of transneme table entries and with a transneme table entry of* that *plurality of transneme table entries mapping a predetermined* (column 2 lines 1-5) *frequency spectrum difference* (see 78 & 79 in figure 4) *to at least one predetermined transneme of a predetermined verbal language; at least one mappings storage in* that *memory, with* that *at least one mappings storage storing one or more found transnemes;*
- Neither Munsell *et al*, Ozawa *et al* nor Briada *et al* disclose *storing voice streams.* In the invention for *synthesizing speech,* Sharman reads on the feature of *at least one transneme-to-vocabulary database in* that *memory* (column 8 lines 18-60), *with* that *at least one transneme-to-vocabulary database mapping a set of one or more found transnemes to at least one speech unit of* that *predetermined verbal language; and* (column 10 lines 21-29) *at least one voice stream representation storage in* that *memory, with* that *at least one voice stream representation storage storing a voice stream representation created from* that *one or more found transnemes;*

- Neither Munsell *et al*, Ozawa *et al*, Briada *et al* nor Sharman disclose *difference thresholds.* In the invention *for synthesizing signals,* Goodridge, Jr. (604 in figure 6 from 705 in figure 7) reads on the feature that *converts* that *frequency spectrum difference to a transneme if* that *frequency spectrum difference is greater than a predetermined difference threshold,* (column 17 lines 45-50) *and creates a digital voice stream representation* (claim 1 lines 66-67) *of* that *voice stream from one or more transnemes thus produced.*

  It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Ozawa *et al,* Braida *et al,* Sharman & Goodridge, Jr. to the device/method of Munsell *et al* so as to automatically quantify attributes of speech for subsequent processing for either recognition and/or synthesis.

10. Regarding claim 2 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al* (12→26→ in figure 2) reads on the feature that *voice stream is accepted as a digital voice stream.*

11. Regarding claim 3 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al* (with *reducing* in column 1 lines 23-24) teaches the feature that *voice stream is compressed.*

12. Regarding claim 4 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al* (20 in figure 2) reads on the feature that the *I/O device comprises a microphone.*

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman, Goodridge, Jr. & Hershkovits *et al*

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr. and further in view of Hershkovits *et al* (U.S. Patent 6,003,004 A).

14. Regarding claim 5 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Neither Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman nor Goodridge, Jr. mention *wireless.* The *speech recognition method and system using compressed speech data* of Hershkovits *et al* (19→18 in figure 1) reads on the feature that the *I/O device comprises a wireless receiver,* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Hershkovits *et al* to the device/method of Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. so as to permit operation unconstrained by a need for maintaining the connection.

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman, Goodridge, Jr. & Guberman

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr. and further in view of Guberman (U.S. Patent 6,138,089 A).

16. Regarding claim 6 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. are silent on the subject of *networks.* The *speech compression and decompression* of Guberman (180 in figure 3) reads on the feature that the *I/O device comprises a digital network interface,* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Guberman to the device/method of Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. so as to expand the capabilities beyond communication.

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr.

17. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr.

18. Regarding claim 7 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al* (column 4 lines 1-10) reads on the feature that the *I/O device comprises an analog network interface.*

19. Regarding claim 8, the claim is set forth with the same limits as claim 1. Munsell *et al* (column 1 line 46) reads on the feature that the *frequency domain converter is a Fourier transform device.*

20. Regarding claim 9 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al* (16 in figure 2) reads on the feature that the *frequency domain converter is a filter bank comprising a plurality of predetermined filters.*

21. Regarding claim 10 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al* doesn't mention *memory.* Ozawa *et al* (column 4 line 68) reads on the feature that the *frequency domain output storage is in* that *memory* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Ozawa *et al* to the device/method of Munsell *et al* so as to avoid the delay of storing and retrieving to/from external devices.

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman, Goodridge, Jr. & Mozer

22. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr. and further in view of Mozer (U.S. Patent 4,435,831 A).

23. Regarding claim 11 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. are silent as to buffer contents. The feature that *memory further comprises a feature storage* is the same as that found in claim 1 and the prior art rejection is applied as a limit set forth from that claim. The time domain compression and synthesis of unvoiced audible

signals of Mozer (column 2 lines 21-22) teaches the feature that *extracts at least one feature from* that *voice stream in a frequency domain and stores* that *at least one feature in* that *feature storage,* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Mozer to the device/method of Munsell *et al,* Ozawa *et al,* Braida *et al,* Sharman & Goodridge, Jr. so as to avoid the delay of storing and retrieving to/from external devices.

24. Regarding claim 12 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al,* Ozawa *et al,* Braida *et al,* Sharman & Goodridge, Jr. are silent as to buffer contents. The feature that *memory further comprises a feature storage* is the same as that found in claim 1 and the prior art rejection is applied as a limit set forth from that claim. Mozer (column 2 lines 27-28) reads on the feature that *extracts at least one feature from* that *voice stream in a frequency domain and stores* that *at least one feature in* that *feature storage,* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Mozer to the device/method of Munsell *et al,* Ozawa *et al,* Braida *et al,* Sharman & Goodridge, Jr. to avoid the delay of storing and retrieving to/from external devices.

Munsell *et al,* Ozawa *et al,* Braida *et al,* Sharman & Goodridge, Jr.

25. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr.

26. Regarding claim 13 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al,* Ozawa *et al,* Braida *et al &* Sharman do not mention a *DSP*. Goodridge, Jr. (603 in figure 6) reads on the features that *frequency domain converter,* that *frequency domain output storage,* that *processor, and* that *memory are included on a digital signal-processing (DSP) chip.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Goodridge, Jr. to the device and/or method of Munsell *et al,* Ozawa

et al, Braida *et al* & Sharman so as to limit the processing support required to the most essential functions.

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman, Goodridge, Jr. & Timms *et al*

27. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr. and further in view of Timms *et al* "Speaker Verification Routines for ISDN And UPT Access and Security using Artificial Neural Networks and Time Encoded Speech (TES) Data", 2nd International Conference on Private Switching Systems and Networks, June 1992).

28. Regarding claim 14 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. do not mention *coding symbols*. Timms *et al* (8^{th}-9^{th} lines from end left column page 60) reads on the feature that the *digital voice stream representation comprises a series of symbols* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Timms *et al* to the device/method of Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. so as to convey descriptive attributes that is characteristic of a signal segment within a limited size and dimension.

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman, Goodridge, Jr. & Pallakoff *et al*

29. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr. and further in view of Pallakoff *et al* (U.S. Patent 5,689,617 A).

30. Regarding claim 15 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. do not mention *coding symbols*. The speech recognition system which returns recognition results as a reconstructed language model with attached data values of Pallakoff *et al*

(column 5 lines 62-63) reads on the feature that the *digital voice stream representation comprises a series of text symbols.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Pallakoff *et al* to the device/method of Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, and Jr. so as to assist the application program in interpreting the recognition results.

Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman, Goodridge, Jr. & Hünlich *et al*

31. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munsell *et al* in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman and further in view of Goodridge, Jr. and further in view of Hünlich *et al* (U.S. Patent 6,304,845 B1).

32. Regarding claim 16 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. do not mention *coding symbols*. The method of transmitting voice data of Hünlich *et al* (column 22-37) reads on the feature that *converts and compresses* that *voice stream into a compressed digital voice stream representation comprising a series of symbols.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Hünlich *et al* to the device/method of Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, and Jr. so as to increase the reliability of phoneme analysis.

33. Regarding claim 17 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. do not mention *coding symbols*. Hünlich *et al* (column 37-41) reads on the feature that *converts and compresses* that *voice stream into a compressed digital voice stream representation and transmits* that *compressed digital voice stream representation as a series of symbols.* It would have been made obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Hünlich *et al* to the device/method of Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman &

Goodridge, Jr. so as to increase the quality of voice synthesis when transmitting various voices.

34. Regarding claim 18 as understood by the Examiner, the claim is set forth with the same limits as claim 1. Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, Jr. do not mention *coding symbols*. Hünlich *et al* (column 5 lines 41-43) reads on the feature that *converts and compresses* that *voice stream into a compressed digital voice stream representation and stores* that *compressed digital voice stream representation as a series of symbols*. It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Hünlich *et al* to the device/method of Munsell *et al*, Ozawa *et al*, Braida *et al*, Sharman & Goodridge, and Jr. so as to require less storage space.

Huang *et al* & Sharman

35. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang *et al* (U.S. Patent 5,627,939 A) in view of Sharman.

36. Regarding claim 19 as understood by the Examiner, the *speech recognition system & method* of Huang *et al* disclose *a method for performing speech recognition on a voice stream* comprising the steps of:

- Huang *et al* reads on the feature of *determining one or more candidate transnemes in* that *voice stream* (see column 2 lines 27-29);
- Huang *et al* reads on the feature of *mapping* that *one or more candidate transnemes to a transneme table to convert* that *one or more candidate transnemes to one or more found transnemes* (see column 2 lines 49-53);
- Huang *et al* reads on the feature of *mapping* that *one or more found transnemes to a transneme-to-vocabulary database* (see column 2 line 44).

Where Huang *et al* is silent on the subject of *conversion to speech units,* Sharman (625-630 figure 6) reads on the feature *to convert* that *one or more found transnemes to one or more speech units* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the

method/teachings of Sharman to the device/method of Huang *et al* so as to simplify the search and reduce the number of items that can be selected.

37. Regarding claim 20 as understood by the Examiner, the claim is set forth with the same limits as claim 19. Huang *et al* (apart from *quantizing* in the 6th line from the end of the Abstract) does not mention *combining*. Sharman (with *clustering* 520 in figure 5) teaches the feature that *one or more speech units are combined to create a digital voice stream representation of* that *voice stream*. It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Sharman to the device/method of Huang *et al* so as to produce elements suitable for synthesizing speech.

Huang *et al*, Sharman & Timms *et al*

38. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang *et al* in view of Sharman and further in view of Timms *et al*.

39. Regarding claim 21 as understood by the Examiner, the claim is set forth with the same limits as claim 19. The feature of the claim is the same as those found in claim 14 and the claim is rejected for the same reasons.

Huang *et al*, Sharman & Pallakoff *et al*

40. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang *et al* in view of Sharman and further in view of Timms *et al*.

41. Regarding claim 22 as understood by the Examiner, the claim is set forth with the same limits as claim 19. The feature of the claim is the same as those found in claim 15 and the claim is rejected for the same reasons.

Huang *et al* & Sharman

42. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang *et al* in view of Sharman.

43. Regarding claim 23 as understood by the Examiner, the claim is set forth with the same limits as claim 19. Huang *et al* (column 3 lines 62-67) reads on the feature of *comparing at least two frequency spectrum frames in a frequency domain in order to determine* that *one or more candidate transnemes.*

Huang *et al*, Sharman & Hünlich *et al*

44. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang *et al* in view of Sharman and further in view of Hünlich *et al*.

45. Regarding claims 24-26 as understood by the Examiner, the claims are set forth with the same limits as claim 19. The features of claims 24, 25 and 26 are the same as those found in claims 16, 17 and 18, respectively, and the claims are rejected for the same reasons.

Huang *et al*, Sharman & Jiménez *et al*

46. Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang *et al* in view of Sharman and further in view of Jiménez *et al* ("Some Results With A Trainable Speech Translation And Understanding System", International Conference on Acoustics, Speech, and Signal Processing, May 1995).

47. Regarding claim 27, the claim is set forth with the same limits as claim 19. Neither Huang *et al* nor Sharman mention *translating.* Jiménez *et al* (last paragraph page 115 and figure 2) reads on the feature that *a voice stream in a* 1st *verbal language is translated converted into a voice stream representation in a* 2nd *language.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Jiménez *et al* to the device/method of Huang *et al* & Sharman so as to ensure that automatic context is not *lost in translation* (3rd paragraph section 3 page 114).

Asghar *et al* & Goodridge, Jr.

48. Claims 28 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* (U.S. Patent 6032116 A) in view of Goodridge, Jr.

49. Regarding claims 28 and 46 as understood by the Examiner, the *distance measure in a speech recognition system for speech recognition using frequency shifting factors to compensate for input signal frequency shifts* of Asghar *et al* reads on the features of *performing speech recognition on a voice stream* as follows:

- Asghar *et al* (410 in figure 4B) reads on the feature of *calculating a frequency spectrum difference between a current frequency spectrum frame and a previous frequency spectrum frame, with* that *current frequency spectrum frame and* that *previous frequency spectrum frame being in a frequency domain and being separated by a predetermined time interval; and* (column 9 line 55) *mapping* that *frequency spectrum difference to a transneme table* (the *matrix,* column 9 line 56) *to convert* that *frequency spectrum difference to at least one transneme*
- Where Asghar *et al* does not speak to *thresholds,* Goodridge, Jr. reads on the feature that if that *frequency spectrum difference is greater than a predetermined difference threshold,* (column 17 lines 45-50) *and creates a digital voice stream representation* (claim 1 lines 66-67) *of* that *voice stream from one or more transnemes thus produced.*
- Where Asghar *et al* does not mention *normalizing.* Goodridge, Jr. (column 16 line 13) reads on the further feature of *normalizing the current frequency spectrum frame.*
- It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Goodridge, Jr. to the device/method of Asghar *et al* so as to provide high subjective quality retaining natural origin.

Asghar *et al*, Goodridge, Jr. & Cline *et al*

50. Claims 29 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Cline *et al* (U.S. Patent 5,696,879 A).

51. Regarding claims 29 and 47 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. Neither Asghar *et al* nor Goodridge, Jr. mention *punctuation.* The *improved voice transmission* of Cline *et al* reads on the feature of *saving tonality level changes* (with the *prosody curves* of column 3 lines 47-50) *of* that *voice stream; and* (column 3 lines 18-21) *using* that *tonality level changes to add punctuation to* that *voice stream representation.*

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Cline *et al* to the device/method of Asghar *et al* & Goodridge, Jr. so as to communicate nuance.

Asghar *et al*, Goodridge, Jr. & Braida *et al*

52. Claims 30 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Braida *et al*.

53. Regarding claims 30 and 48 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. Neither Asghar *et al* nor Goodridge, Jr. mention *extracting from time domain.* Braida *et al* (column 4 lines 14-15) reads on the feature that *at least one feature is extracted from* that *voice stream in a time domain.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Braida *et al* to the device and/or method of Asghar *et al* & Goodridge, Jr. so as to save computation.

Asghar *et al* & Goodridge, Jr.

54. Claims 31 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr.

55. Regarding claims 31 and 49 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. Asghar *et al* makes no mention of *extracting from frequency domain.* Goodridge, Jr. (column 5 lines 55-59) teaches the feature that *at least one feature is mathematically extracted from* that *voice stream in a frequency domain.* It would have been obvious to a person of ordinary skill in the art of

speech signal processing at the time of the invention to apply the method/teachings of Goodridge, Jr. to the device/method of Asghar *et al* so as to avoid a matching process.

Asghar *et al*, Goodridge, Jr. & Takatori *et al*

56. Claims 32 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Takatori *et al* (U.S. Patent 5,550,949 A).

57. Regarding claims 32 and 50 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. Neither Asghar *et al* nor Goodridge, Jr. mention *extracting from frequency domain.* The *method for compressing voice data by dividing extracted voice frequency domain parameters by weighting values* of Takatori *et al* (column 1 lines 25-29) reads on the feature that *at least one feature is mathematically extracted from* that *voice stream in a frequency domain, and wherein* that *voice stream is a compressed voice stream already in* that *frequency domain.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Takatori *et al* to the device/method of Asghar *et al* & Goodridge, Jr. so as to perform clear and effective voice processing.

Asghar *et al*, Goodridge, Jr. & Ozawa *et al*

58. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Ozawa *et al*.

Regarding claim 33 as understood by the Examiner, the claim is set forth with the same limits as claim 28. Neither Asghar *et al* nor Goodridge, Jr. mention *extracting from frequency domain.* Ozawa *et al* (column 15 lines 48-50) reads on the features of *performing a frequency domain transformation on* that *voice stream upon a predetermined time interval to create* that *current frequency spectrum frame* and *storing* that *current frequency spectrum frame in a plurality of frequency bins* (as the *subframes* in column 12 lines 61-68)

storing that *plurality of frequency domain outputs* and (column 20 line 10-14) reads on *amplitude shifting and frequency shifting* that *current frequency spectrum frame based on a comparison of a current base frequency of* that *current frequency spectrum frame to a previous base frequency of a previous frequency spectrum frame* (column 20 line 62 to 2nd line column 21). It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Ozawa *et al* to the device/method of Asghar *et al* & Goodridge, Jr. so that the quantity of calculation can be reduced to about ½ with comparable characteristics obtained.

Asghar *et al*, Goodridge, Jr. & Svensson

59. Claims 34 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Svensson (U.S. Patent 5,729,657).

60. Regarding claims 34 and 61 as understood by the Examiner as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. Neither Asghar *et al* nor Goodridge, Jr. speak to the subject of *intervals.* The *time compression/expansion of phonemes based on the information carrying elements of the phonemes* of Svensson (1st sentence in Abstract) reads on the feature that *predetermined time interval is less than a phoneme in length* which would have obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Svensson to the device/method of Asghar *et al* & Goodridge, Jr. so as to be able to change less-important parts of a phoneme without altering the information-carrying parts of a phoneme.

Asghar *et al*, Goodridge, Jr. & Ney *et al*

61. Claims 35 and 62 are rejected under 35 U.S.C. 103(a) as unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Ney *et al* (U.S. Patent 5,058,166 A).

62. Regarding claims 35 and 62 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. Neither Asghar *et al* speak to the subject of *intervals.* In recognizing coherently spoken words in 10 ms intervals, Ney *et al* (column 4 line 9) reads on the feature that *predetermined time interval is about ten milli*seconds*,* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Ney *et al* to the device/method of Asghar *et al* & Goodridge, Jr. so as to simulate the duration of a phoneme.

Asghar *et al*, Goodridge & Komissarchik *et al*

63. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Komissarchik *et al* (U.S. Patent 5,799,276A).

64. Regarding claim 36 as understood by the Examiner, the claim is set forth with the same limits as claims 28. Neither Asghar *et al* nor Goodridge, Jr. speak to the subject of *intervals*, while with the *knowledge-based speech recognition system and methods having frame length computed based upon estimated pitch period of vocalic intervals,* Komissarchik *et al* (column 76 lines 40-43) teaches the feature that *predetermined difference threshold is about 5% of average amplitude of a base frequency bin over a window of less than 100 milliseconds* (column 34 lines 46-50), which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Komissarchik *et al* to the device/method of Asghar *et al* & Goodridge, Jr. so as to fit a set of "obvious" phoneme boundaries established for Hamming windows.

Asghar *et al*, Goodridge, Jr., Huang *et al* & Sharman

65. Claims 37 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Huang *et al* and further in view of Sharman.

66. Regarding claims 37 and 64 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. Neither Asghar *et al* nor Goodridge, Jr. mention *vocabulary lookups.* Huang *et al* (column 2 lines 27-29) reads on the feature of *accumulating a predetermined number of transnemes* and, (with the *associating* in column 2 lines 49-53) without performing a lookup. Sharman (625-630 figure 6) reads on the feature *of performing a lookup of* that *predetermined number of transnemes against a transneme-to-vocabulary database; and matching at least one transneme in* that *predetermined number of transnemes to at least one speech unit in* that *transneme-to-vocabulary database.*

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Huang *et al* & Sharman to the device/method of Asghar *et al* & Goodridge, Jr. to simplify the search and reduce the number of items that can be selected.

Asghar *et al*, Goodridge, Jr., Huang *et al*, Sharman & Holzrichter *et al*

67. Claims 38 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Huang *et al* and further in view of Sharman and further in view of Holzrichter *et al* (U.S. Patent 5,729,694 A).

68. Regarding claims 38 and 65 as understood by the Examiner; the claims are set forth with the same limits as claims 37 and 64, respectively. Neither Asghar *et al* nor Goodridge, Jr. nor Huang *et al* nor Sharman mention *vocabulary lookups.* With speech coding, reconstruction and recognition using acoustics and electromagnetic waves, Holzrichter *et al* (column 41 lines 10-14) reads on the feature that *about ten to about twenty transnemes are accumulated in* that *predetermined number of transnemes for performing* that *lookup against* that *transneme-to-vocabulary database.*

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Holzrichter *et al* to the device/method of Asghar *et al*, Goodridge, Jr., Huang *et al* & Sharman so as to storing diphone and triphone information.

Asghar *et al*, Goodridge, Jr., Huang *et al*, Sharman, Liaguno *et al* & Henderson *et al*

69. Claims 39 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Huang *et al* and further in view of Sharman and further in view of Liaguno *et al* (U.S. Patent 5,729,741 A) and further in view of Henderson *et al* (U.S. Patent 5,544,049 A).

70. Regarding claims 39 and 66 as understood by the Examiner; the claims are set forth with the same limits as claims 37 and 64, respectively. Asghar *et al* does not mention *vocabulary lookups.* With the system for storage and retrieval of diverse types of information obtained from different media sources which includes video, audio, and text transcriptions, Liaguno *et al* reads on the feature *of performing a lookup against a transneme-to-vocabulary database further comprising performing a free-text-search lookup of* that *predetermined number of transnemes against* that *transneme-to-vocabulary database.* With the *method for performing a search of a plurality of documents for similarity to a plurality of query words,* Henderson *et al* reads on the feature of *using inverted-index techniques in order to find one or more best-fit mappings of a segment of transnemes in* that *predetermined number of transnemes to at least one speech unit in* that *transneme-to-vocabulary database* of Sharman.

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Liaguno *et al* & Henderson *et al* to the device/method of Asghar *et al* so as to efficiently search the table.

Asghar *et al*, Goodridge, Jr., Munsell *et al*, Ozawa *et al*, Braida *et al* & Timms *et al*

71. Claims 40 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Munsell *et al* and further in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Timms *et al*.

72. Regarding claims 40 and 67 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. The features of the claims are the same as those found in claim 14 and the claim is rejected for the same reasons.

Asghar *et al*, Goodridge, Jr., Munsell *et al*, Ozawa *et al*, Braida *et al* & Pallakoff *et al*

73. Claims 41 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Munsell *et al* and further in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Pallakoff *et al*.

74. Regarding claims 41 and 68 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. The features of the claims are the same as those found in claim 15 and the claim is rejected for the same reasons.

Asghar *et al*, Goodridge, Jr., Munsell *et al*, Ozawa *et al*, Braida *et al* & Hünlich *et al*

75. Claims 42-44 and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Munsell *et al* and further in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Hünlich *et al*.

76. Regarding claims 42-44 and 69-71 as understood by the Examiner, claims 42-44 are set forth with the same limits as claims 28 and claims 69-71 are set forth with the same limits as claim 46. The features of the claims 42 & 69 are the same as those found in claim 16, those of claim 43 & 70 are the same as those of claim 17 and those of claims 44 & 71 are those of claim 18; and the respective claims are rejected for the corresponding reasons.

Asghar *et al*, Goodridge, Jr. Huang *et al*, Sharman & Jiménez *et al*

Claims 45 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Huang *et al* and further in view of Sharman and further in view of Jiménez *et al*.

77. Regarding claims 45 and 72 as understood by the Examiner; the claims are set forth with the same limits as claims 28 and 46, respectively. The features of the claims are the same as that found in claim 27 and the claims are rejected for the same reasons.

Asghar *et al*, Goodridge, Jr. & Lockwood *et al*

78. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Lockwood *et al* (U.S. Patent 5,692,103).

79. Regarding claim 51 as understood by the Examiner; the claim is set forth with the same limits as claim 46. Neither Asghar *et al* nor Goodridge, Jr. mention *time-overlap.* Lockwood *et al* (column 3 line 13) reads on the feature of *performing time-overlapping frequency domain transformations* (line 19). It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Lockwood *et al* to the device/method of Asghar *et al* & Goodridge, Jr. so as to effect an early smoothing.

Asghar *et al*, Goodridge, Jr., Munsell *et al*, Ozawa *et al*, Braida *et al* & Sharman

80. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Munsell *et al* and further in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman.

81. Regarding claim 52 as understood by the Examiner; the claim is set forth with the same limits as claim 46. The features of the claim are the same as those found in claim 8 and the claim is rejected for the same reasons.

Asghar *et al*, Goodridge, Jr., Lockwood *et al* & Iyengar *et al*

82. Claims 53-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Lockwood *et al* and further in view of Iyengar *et al* (U.S. Patent 5,455,888).

83. Regarding claims 53 and 54 as understood by the Examiner; the claims are set forth with the same limits as claim 46. Neither Asghar *et al* nor Goodridge, Jr. mention *time-overlap,* addressed by Lockwood *et al* in claim 51, nor do any of them set times. The *speech bandwidth extension method and apparatus* of Iyengar *et al* (column 7 lines 64-65) reads on the feature of *performing time-overlapping frequency domain transformations of a*

*predetermined transformation window about every 5 milli*seconds while (column 4 lines 20-25) reads on the feature of *performing time-overlapping frequency domain transformations of an about 10 milli*second *transformation window.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Lockwood *et al* & Iyengar *et al* to the device/method of Asghar *et al* & Goodridge, Jr. so as to provide wideband effects without expanding existing narrowband networks.

Asghar *et al*, Goodridge, Jr. & Ozawa *et al*

84. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Ozawa *et al.*

85. Regarding claim 55 as understood by the Examiner; the claim is set forth with the same limits as claim 46. The features of the claim are the same as those found in claim 33 and the claim is rejected for the same reasons.

Asghar *et al*, Goodridge, Jr. & Iyengar *et al*

86. Claims 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Iyengar *et al.*

87. Regarding claims 56 and 57 as understood by the Examiner; the claims are set forth with the same limits as claim 46. Neither Asghar *et al* nor Goodridge, Jr. mention *normalizing.* Goodridge, Jr. (column 16 line 52) reads on the feature of *normalizing a base frequency of* that *current frequency spectrum frame to a base frequency of* that *previous frequency spectrum frame* while (line 53-54) read on the feature of *normalizing comprising frequency shifting* that *current frequency spectrum frame using an extracted pitch feature.* It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Goodridge, Jr. to the device/method of Asghar *et al* & Goodridge, Jr. so as to provide an acceptable margin for computation.

Asghar *et al*, Goodridge, Jr. & Pappas

88. Claims 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Pappas (U.S. Patent 3,621,150 A).

89. Regarding claim 58 as understood by the Examiner, the claim is are set forth with the same limits as claim 46. Neither Asghar *et al* nor Goodridge, Jr. mention *normalizing.* The speech processor for changing voice pitch of Pappas (column 1 lines 32-33) reads on the feature *of normalizing comprising amplitude shifting* that *current frequency spectrum frame using an extracted volume feature* which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Pappas to the device/method of Asghar *et al* & Goodridge, Jr. so as to more closely approach the power levels of the speech being processed.

Asghar *et al*, Goodridge, Jr., Pappas & Hirokazu *et al*

90. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Pappas and further in view of Hirokazu *et al* (U.S. Patent 3, 592,969 A).

91. Regarding claim 59 as understood by the Examiner, the claim is are set forth with the same limits as claim 46. While neither Asghar *et al* nor Goodridge, Jr. mention *normalizing,* Pappas reads on the feature of *amplitude shifting*, which, applied with the speech analyzing apparatus of Hirokazu *et al* (claims 1 and 2), reads on the feature *of normalizing comprising amplitude shifting and frequency shifting* that *current frequency spectrum frame based on a comparison of a current base frequency of* that *current frequency spectrum frame to a previous base frequency of* that *previous frequency spectrum frame.* It would have been made obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Pappas & Hirokazu *et al* to the device/method of Asghar *et al*, Goodridge, Jr. so as to minimize individual differences when forming patterns for recognition.

Asghar *et al*, Goodridge, Jr., Munsell *et al*, Ozawa *et al*, Braida *et al* & Sharman

92. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asghar *et al* in view of Goodridge, Jr. and further in view of Ozawa *et al* and further in view of Braida *et al* and further in view of Sharman.

93. Regarding claim 60, the claim is set forth with the same limits as claim 46. The features of the claim are the same as those found in claim 1 and the claim is rejected for the same reasons.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Lin *et al* (U.S. Patent 5,666,466 A) speaker recognition using selected spectral information.
- Dewhurst *et al* (U.S. Patent 4,829,574 A) signal processing w/overlapping samples.
- Maxemchuk (U.S. Patent 4,313,197 A) spread spectrum arrangement for (de) multiplexing speech signals and non-speech signals.
- Chen *et al* '410 (U.S. Patent 6,510,410 B1) method and apparatus for recognizing tone languages using pitch information.
- Chen *et al* '905 (US 5,751,905 A) statistical acoustic processing method and apparatus for speech recognition using a toned phoneme system.
- Guberman (U.S. Patent 6,138,089 A) speech compression and decompression.
- Li *et al* ("Bi-Level Video: Video Communication At Very Low Bit Rates", Proceedings of the 9th ACM international conference on Multimedia, October 2001) coding with text symbols.
- Neng-Huang *et al* ("Prosody Model in a Mandarin Text-To-Speech System Based on a Hierarchical Approach", IEEE International Conference on Multimedia, July 2000) a prosody model in text-to-speech (TTS) by extracting meaningful parameters form the voice files and text files.

- Tenpaku *et al* (U.S. Patent 5,956,685 A) sound characteristic converter & sound-label association.
- Ichikawa *et al* (U.S. Patent 4,528,688 A) continuous speech recognition method in 10 ms.
- Lowry *et al* (U.S. Patent 5,978,764 A) speech synthesis in 10 ms segments.
- Picheny (U.S. Patent 4,817,158 A) normalization of speech signals.
- Graupe (U.S. Patent 5,097,510 A) artificial intelligence pattern-recognition-based noise reduction system for speech processing.

94. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, supervisor Richemond Dorvil can be reached at (703)305-9645.

The fax phone number for Technology Center 2600 is (703)872-9314. Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE". Formal response to this action may be faxed according to the above instructions,
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2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan
Examiner
Art Unit 2654

DAN/d
October 20, 2003

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